REMARKS

Consideration of this application in view of the foregoing amendments and the following remarks is respectfully requested. New claims 2-60 have been added. It is respectfully submitted that no new matter has been added.

Applicants respectfully submit that the claims are in condition for allowance, and such action is earnestly solicited.

If there are any additional charges, please charge Deposit Account No. 02-2666. If a telephone interview would in any way expedite the prosecution of this application, the Examiner is invited to contact the undersigned at (408) 720-8300.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: Sept. 28, 2001

Sanjeet Dutta

Sanjeet K. Dutta
Reg. No. 46,145
Filed Under 37 C.F.R.§1.34(a)

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, CA 90025-1026
(408) 947-8200

VERSION WITH MARKING TO SHOW CHANGES MADE

Please amend the claims as follows:

1. (UNCHANGED) A method for identifying crosstalk sources, comprising:
   acquiring signals;
   determining a frequency for each of the signals;
   determining a baud rate for each of the signals; and
   estimating a channel impulse response for each of the signals.

2. (NEW) The method according to claim 1, wherein determining a baud rate for each of the signals comprises searching for periodic frequency regions of the signal using a sequence of known symbols.

3. (NEW) The method according to claim 2, wherein searching for periodic frequency regions comprises:
   performing a non-linear operation; and
   performing a Fast Fourier Transform analysis.

4. (NEW) The method according to claim 1, wherein estimating a channel impulse response is performed using the sequence of known symbols.

5. (NEW) The method according to claim 1 wherein estimating the channel impulse response comprises:
   dividing the signal in a plurality of frequency regions; and
   averaging the plurality of frequency regions into an average frame of signal symbols.

6. (NEW) The method of claim 5, wherein estimating the channel impulse response is performed using the known symbols as an input and the average frame of signal symbols as an output.

7. (NEW) The method according to claim 1, wherein estimating a channel impulse response for each of the signals comprises evaluating a multiple input single output system.

8. (NEW) The method according to claim 1, wherein the crosstalk source is a Pulse Amplitude Modulation signal.

9. (NEW) The method according to claim 1, wherein the crosstalk source is a Quadrature Amplitude Modulation signal.

10. (NEW) The method according to claim 1, wherein the crosstalk source is a Carrierless Amplitude and Phase Modulation signal.

11. (NEW) The method according to claim 1, wherein the method for identifying crosstalk sources is performed in a Digital Subscriber Line system.

12. (NEW) The method according to claim 1, wherein the method for identifying crosstalk sources is performed in a wireless communication system.

13. (NEW) The method according to claim 1, wherein the method for identifying crosstalk sources is performed in a cable communication system.

14. The method according to claim 1, wherein the method for identifying crosstalk sources is performed in an optical communication system.

15. (NEW) A method of characterization of an interference source of a communication signal in a communication system, the method comprising:

(a) characterizing the interference source by determining the interference source signal type;

(b) estimating the interference signal transmission rate by searching for periodic frequency regions of the communication signal using a sequence of known symbols of the communication signal;

(c) performing a service type identification; and

(d) estimating a channel impulse response of the interference signal.

16. (NEW) The method according to claim 15, wherein searching for periodic frequency regions of the interference signal comprises:
performing a non-linear operation on the communication signal; and
performing a Fast Fourier Transform analysis.

17. (NEW) The method according to claim 16, wherein performing a non-linear operation on the communication signal comprises taking the square value of the communication signal.

18. (NEW) The method according to claim 15, wherein estimating a channel impulse response comprises using the sequence of known symbols of the communication signal.

19. (NEW) The method according to claim 18, wherein the sequence of known symbols of the communication signal is a periodic signal with period equal to a frame length corresponding to the service type.

20. (NEW) The method according to claim 15, wherein estimating the channel impulse response comprises:
dividing the communication signal in a plurality of frequency regions; and
averaging the plurality of frequency regions into an average frame of signal symbols.

21. (NEW) The method of claim 20, wherein estimating the channel impulse response is performed using the known symbols of the communication signal as an input and the average frame of signal symbols as an output.

22. (NEW) The method according to claim 15, wherein interference source is a cross-talk disturber.

23. (NEW) The method according to claim 15, wherein the interference source comprises a plurality of distinct interference signals.

24. (NEW) The method according to claim 15, wherein estimating a channel impulse response of the interference signal comprises evaluating a multiple input single output system.

25. (NEW) The method according to claim 23 further comprising performing steps (b) through (d) for each of the plurality of interference signals.

26. (NEW) The method according to claim 15, wherein the interference source is a Pulse Amplitude Modulation signal.

27. (NEW) The method according to claim 15, wherein the interference source is a Quadrature Amplitude Modulation signal.

28. (NEW) The method according to claim 15, wherein the interference source is a Carrierless Amplitude and Phase Modulation signal.

29. (NEW) The method according to claim 15, wherein the communication system is a Digital Subscriber Line system.

30. (NEW) The method according to claim 15, wherein the communication system is a wireless communication system.

31. (NEW) The method according to claim 15, wherein the communication system is a cable communication system.

32. (NEW) The method according to claim 15, wherein the communication system is an optical communication system.

33. (NEW) A method of characterization of an interference source in a communication signal within a communication system, the method comprising:

determining the interference source signal type;

estimating the interference signal transmission rate comprising:

dividing the bandwidth of the communication signal in a plurality of frequency regions;

selecting a plurality of frequency regions by performing a frequency zoom in analysis of the communication signal; and

detecting harmonic components of the communication signal for each of the plurality of frequency regions;

performing a service type identification; and

estimating a channel impulse response of the interference signal.

34. (NEW) The method of claim 33, wherein a frequency zoom in analysis comprises:

modulating the communication signal by a nominal frequency; and

reducing the bandwidth of the signal to the bandwidth of the frequency region.

35. (NEW) The method according to claim 34, wherein reducing the bandwidth of the signal comprises a filtering technique.

36. (NEW) The method according to claim 33, wherein estimating the interference signal transmission rate further comprises:
performing a non-linear operation on the communication signal; and
performing a Fast Fourier Transform analysis.

37. (NEW) The method according to claim 36, wherein performing a non-linear operation on the communication signal comprises taking the square value of the communication signal.

38. (NEW) The method according to claim 33, wherein estimating a channel impulse response comprises using a sequence of known symbols of the communication signal.

39. (NEW) The method according to claim 38, wherein the sequence of known symbols of the communication signal is a periodic signal with period equal to a frame length corresponding to the service type.

40. (NEW) The method according to claim 33, wherein estimating the channel impulse response comprises:
dividing the communication signal in a plurality of frequency regions; and
averaging the plurality of frequency regions into an average frame of signal symbols.

41. (NEW) The method of claim 40, wherein estimating the channel impulse response is performed using the known symbols of the communication signal as an input and the average frame of signal symbols as an output.

42. (NEW) The method according to claim 33, wherein interference source is a cross-talk disturber.

43. (NEW) The method according to claim 33, wherein the interference source comprises a plurality of distinct interference signals.

44. (NEW) The method according to claim 33, wherein estimating a channel impulse response of the interference signal comprises evaluating a multiple input single output system.

45. (NEW) The method according to claim 33, wherein the interference source is a Pulse Amplitude Modulation signal.

46. (NEW) The method according to claim 33, wherein the interference source is a Quadrature Amplitude Modulation signal.

47. (NEW) The method according to claim 33, wherein the interference source is a Carrierless Amplitude and Phase Modulation signal.

48. (NEW) The method according to claim 33, wherein the communication system is a Digital Subscriber Line system.

49. (NEW) The method according to claim 33, wherein the communication system is a wireless communication system.

50. (NEW) The method according to claim 33, wherein the communication system is a cable communication system.

51. (NEW) The method according to claim 33, wherein the communication system is an optical communication system.

52. (NEW) A method for identification of an interference source in a communication system comprising:

acquiring a communication signal;

dividing the communication signal in a plurality of frames representing frequency regions; and

performing an average of the plurality of frames.

53. (NEW) The method according to claim 52 further comprises estimating a channel impulse response of the interference source using the average of the plurality of frames.

54. (NEW) The method according to claim 52 further comprises estimating a channel impulse response of the interference source using a sequence of known symbols of the communication signal.

55. (NEW) A computer readable medium containing executable instructions which, when executed in a processing system, causes said system to perform a method of characterization of an interference source of a communication signal in a communication system, the method comprising:

(a) characterizing the interference source by determining the interference source signal type;

(b) estimating the interference signal transmission rate by searching for periodic frequency regions of the communication signal using a sequence of known symbols of the communication signal;

(c) performing a service type identification; and

(d) estimating a channel impulse response of the interference signal.

56. (NEW) A computer readable medium containing executable instructions which, when executed in a processing system, causes said system to perform a method of characterization of an interference source of a communication signal in a communication system, the method comprising:

estimating the interference signal transmission rate comprising:

dividing the bandwidth of the communication signal in a plurality of frequency regions;

selecting a plurality of frequency regions by performing a frequency zoom in analysis of the communication signal; and

detecting harmonic components of the communication signal for each of the plurality of frequency regions;

performing a service type identification; and

estimating a channel impulse response of the interference signal.

57. (NEW) A computer readable medium containing executable instructions which, when executed in a processing system, causes said system to perform a method of identification of an interference source in a communication system, the method comprising:

acquiring a communication signal;

dividing the communication signal in a plurality of frames representing frequency regions; and

performing an average of the plurality of frames.

58. (NEW) An article of manufacture comprising a program storage medium readable by a computer and tangibly embodying at least one program of instructions executable by said computer to perform a method of characterization of an interference source of a communication signal in a communication system, the method comprising:

(a) characterizing the interference source by determining the interference source signal type;

(b) estimating the interference signal transmission rate by searching for periodic frequency regions of the communication signal using a sequence of known symbols of the communication signal;

(c) performing a service type identification; and

(d) estimating a channel impulse response of the interference signal.

59. (NEW) An article of manufacture comprising a program storage medium readable by a computer and tangibly embodying at least one program of

instructions executable by said computer to perform a method of characterization of an interference source of a communication signal in a communication system, the method comprising:

estimating the interference signal transmission rate comprising:

dividing the bandwidth of the communication signal in a plurality of frequency regions;

selecting a plurality of frequency regions by performing a frequency zoom in analysis of the communication signal; and

detecting harmonic components of the communication signal for each of the plurality of frequency regions;

performing a service type identification; and

estimating a channel impulse response of the interference signal.

60. (NEW) An article of manufacture comprising a program storage medium readable by a computer and tangibly embodying at least one program of instructions executable by said computer to perform a method of identification of an interference source in a communication system, the method comprising:

acquiring a communication signal;

dividing the communication signal in a plurality of frames representing frequency regions; and

performing an average of the plurality of frames.